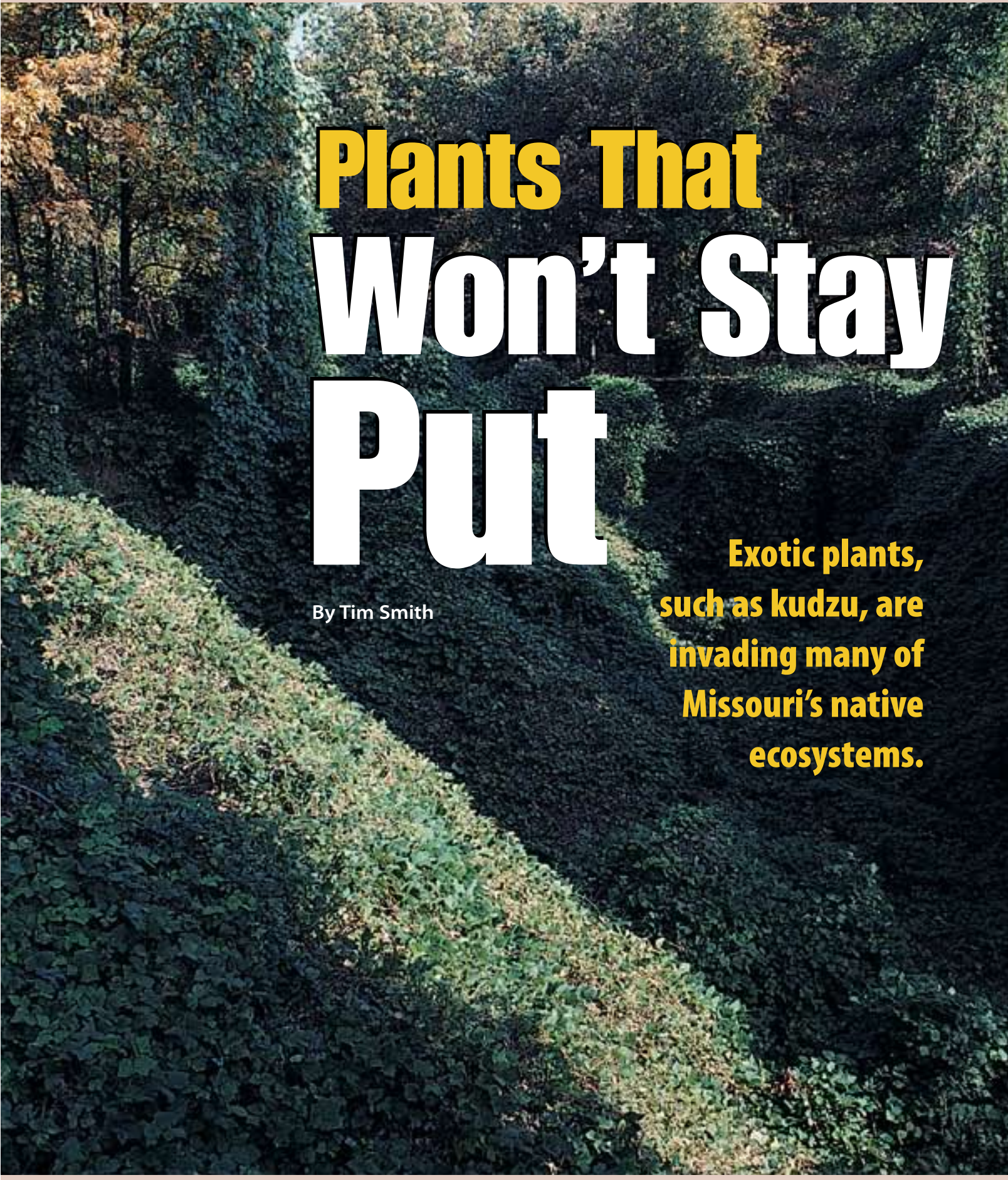


Plants That Won't Stay Put

Exotic plants, such as kudzu, are invading many of Missouri's native ecosystems.

By Tim Smith

Think of an ecosystem as a precision watch. The numerous levers, springs and cogs in the watch fit together as a harmonious, functioning whole. Introducing exotic species can be compared to opening the back of the watch and throwing in some additional parts. They may stay out of the way and have no effect. They might cause the watch to run fast or slow. Or, an extra part may fall into just the right spot to stop the watch completely. An example of a "stopped-watch" ecosystem might be a formerly diverse forest that has become completely covered by kudzu—an exotic vine —to the extent that only kudzu grows there.

When you look closely at a Missouri landscape you may find a great diversity of plants that coexist in apparent harmony. But in reality you are looking at a fierce competition. For thousands of years,

Cliff White photographs/Janet Cuthbertson photoillustration

plants native to Missouri have competed for available space, light, soil, water and nutrients. In the last few hundred years a host of exotic plants have arrived here from all over the world and tilted the balance of the struggle.

Some exotic plants, otherwise known as non-native or alien, were brought here intentionally. Others arrived by accident, perhaps as seeds hitchhiking on ships' cargo or in packing material. Many of these plants originated in Europe or Asia and were brought to North America during the earliest periods of exploration and settlement. Others continue to be introduced thanks to the expansion of global commerce.

Through millennia, our native plants have formed connections to many other elements of the landscape. A native plant may be tied to a particular insect that will collect and distribute its pollen to ensure seed production. Other insects may feed on the plant's foliage, stems, roots, flowers, or seeds, or they may drink the nectar it produces. Underground, the plant's roots may be connected to a specific fungus that improves the plant's access to nutrients in the soil. Other fungi, living in the plant's leaves, may harm the plant's health and keep the species from becoming more widespread.

Exotic plants, on the other hand, have been removed from their own native environments and transported to foreign regions that don't have the pests, diseases and competition from other species that kept them in check in their homelands.

In Missouri, about 800 exotic plant species (26 percent of our flora) grow outside of cultivation. A small percentage of these exotic plants have spread so rapidly into native ecosystems that they out-compete and replace native species.

Most non-native plants that were brought to North America have not spread aggressively. Tulips, originally from Asia, are an example. They stay where we plant them and may require special watering, fertilizing, or protection from the heat or cold to keep them healthy.

In Missouri, about 800 exotic plant species (26 percent of our flora) grow outside of cultivation. A small percentage of these exotic plants have spread so rapidly into native ecosystems that they out-compete and replace native species. The result of the continued spread of exotic plants will be a less interesting planet in which a few aggressively spreading, globetrotting species dominate or change the character of many diverse and distinctive regional landscapes.

Some exotic plants may seem beneficial because they can control erosion. Others are desirable because they grow quickly or provide food for wildlife. Over time, however, people have repeatedly failed to consider the many undesirable effects of exotic species.

Shrub honeysuckles, for example, provide abundant fruits that are eaten by birds, but recent studies show that birds nesting in shrub honeysuckles lose more eggs or young to nest predators than birds nesting in native shrubs. Our short-sightedness also led to the widespread establishment of multiflora rose, kudzu, purple loosestrife and teasel. The time for caution is before planting because, once established, exotic plants may resist our efforts to control or eradicate them.

The Missouri Department of Conservation has identified a number of exotic plants that are capable of aggressively spreading into our native ecosystems. We work to eradicate or control these species on public lands that we manage. While some of these plants are still sold commercially, planting them can put nearby native habitats at risk.

Some readily identifiable problem species are described below. Descriptions and control methods for the species shown here, as well as others, are available on the Department's website at www.missouriconservation.org/nathis/exotic. Once you access that web page, select "Vegetation Management Manual." You can also obtain control recommendations for particular species by writing to: Resource Science Division, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102-0180. ► ► ►

Autumn Olive

Elaeagnus umbellata

Native to China, Japan and Korea, autumn olive was widely planted in the past for food and cover for wildlife, to create windbreaks and to control soil erosion.

This shrub can reach heights up to 20 feet. It can be found away from planting sites in old fields and pastures, along roadsides and in open forests. The lower surfaces of the leaves are covered with silvery scales. Birds spread the seeds after eating the fleshy fruits.

Shrub or Bush Honeysuckles

Lonicera maackii and
Lonicera morrowii

In contrast to our native honeysuckles, which are twining vines, these Asian honeysuckles are shrubs.

They have been planted as ornamentals and as wildlife food plants. Birds eat the fruits and spread the seeds. Where shrub honeysuckle grows, it often replaces the native shrubs and eliminates woodland wildflowers from the forest floor. This completely changes the character of the forest understory to the detriment of native plants and animals. Many forests near Missouri's urban areas have been heavily colonized by shrub honeysuckles.

Common Buckthorn

Rhamnus cathartica

This shrub or small tree, which is native to Europe and Asia, can grow as high as 25 feet.

Introduced into North America for use as an ornamental shrub, it spreads from seed after birds eat the fruits. Common buckthorn can also resprout from cut or damaged stems. It is quite sun-tolerant and can inhabit woodlands, savannas, prairies, fencerows, roadsides and abandoned fields. It readily invades native habitats, where it displaces native shrubs and wildflowers.

Crown Vetch

Securigera varia

This legume is native to Europe, Asia and Africa. It is a common sight for Missourians, having been planted extensively along highway rights-of-way for erosion control. It spreads by rhizomes and by seeds that are dispersed by water. Crown vetch grows best in sunny areas and spreads from planted sites to gravel bars, streambanks, glades and other open areas. No longer planted on roadsides, it is still sold by seed companies as a ground cover.

Cut-leaved Teasel and Common Teasel

Dipsacus laciniatus and
Dipsacus fullonum

Teasel was brought to North America from Europe as early as the 1700s. The spiny seed heads were once used to raise the nap of cloth in the textile industry. It has spread rapidly from the eastern U.S. in the last few decades, primarily along highway rights-of-way. It is now common along Missouri's roadsides, but it can also spread to pastures, gravel bars and other open areas, including natural wetlands and prairies. Teasel grows in large, dense stands from which it excludes other vegetation.

Garlic Mustard

Alliaria petiolata

Garlic mustard is native to Europe and was probably brought to the U.S. for use as a culinary herb. It aggressively invades upland and bottomland forests, where it can exclude other species from the forest floor. In Missouri, ►

Teasel

Jim Rathert

Common Buckthorn

Crown Vetch

Jim Rathert

Jim Rathert

Shrub or Bush Honeysuckle

Bruce Schuette

Autumn Olive

George Yatskievych

Shrub or Bush Honeysuckle

Tim Smith

Garlic Mustard

Tim Smith

Japanese Honeysuckle

George Yatskevych

Purple Loosestrife

Tim Smith

it is most common in the northern half of the state in moist forests near streams or rivers.

Japanese Honeysuckle

Lonicera japonica

This climbing vine was brought to the U.S. from Japan in 1806 for use as a horticultural ground cover. Now common over much of the eastern U.S., Japanese honeysuckle aggressively colonizes open or forested areas. It usually becomes established after birds spread its seed. It can completely cover shrubs and low-growing plants, producing dense shade that prohibits growth beneath it. More common in southern Missouri, its growth is somewhat limited in the north by cold winter temperatures.

Kudzu

Pueraria lobata

Kudzu was brought to the U.S. from Japan in the late 1800s. Originally, it was promoted as livestock forage and as a means of erosion control.

In Missouri, kudzu can be found along highways where it was planted before it was found to be so invasive. It spreads over the ground or climbs on brush or trees, forming a dense tangle of vines that shades out any vegetation beneath it.

Kudzu can spread from vines that run along the ground or from underground stems called rhizomes. Its seeds are known to disperse over long distances, further increasing its spread. Cold winters can limit the growth of kudzu, but it has been found in northern Missouri, as well as farther south.

Multiflora Rose

Rosa multiflora

This shrub was brought to the U.S. from Japan to use as a root stock on which to graft cultivated roses. Later, it was promoted for various other uses, including erosion control, wildlife food, and as live fencing for livestock.

Birds and small mammals spread the seeds. It occurs all over Missouri, primarily in pastures and fencerows, but also in open to partially shaded areas where soil has been disturbed. Its sprawling tendency allows it to form impenetrable thickets that smother other vegetation.

Musk Thistle

Carduus nutans

Although native to Europe, musk thistle is widely established in the U.S. and occurs over most of Missouri. It grows primarily in pastures and old fields, on waste ground and along highway and railroad rights-of-way. It can also invade natural landscapes, including glades and prairies.

Musk thistle is prolific in open areas, producing as many as 11,000 seeds per plant. Infestations hurt farmers because the plant competes with crops for light, space, nutrients and water. Its spiny tissue is unsuitable for grazing livestock.

Purple Loosestrife

Lythrum salicaria

This perennial plant was brought from Europe and Asia in the 1800s for use as an ornamental and as a nectar source for honeybees.

Purple loosestrife is designated a Missouri noxious weed, but some cultivars are still legal to sell. It has the ability to dominate freshwater marshes, wet prairies and other wetland habitats, eliminating native wetland flora. It thrives in full sun, where a single plant can produce 300,000 tiny seeds in a season. In mid to late summer, the showy purple spikes can be seen along ditches, pond and river banks, and in low, wet areas of fields. ►

Jim Rathert

Musk Thistle

Jim Rathert

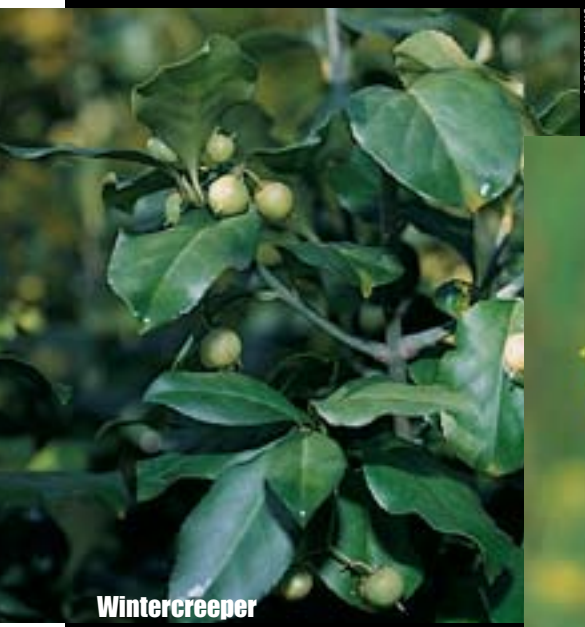
Kudzu

Multiflora Rose

Tim Smith

Tim Smith

Kudzu


Jim Rathert

Wintercreeper


Don Kurz

Sweet Clover


Jim Rathert

Sericea Lespedeza

Sericea Lespedeza

Lespedeza cuneata

This perennial legume was brought to the U.S. from eastern Asia and has grown in Missouri since the 1930s.

Because it is drought-resistant and forms dense stands on steep slopes, it has been widely planted for erosion control. It's been used on private lands to stabilize soils along roads and pond levees. It was also promoted as a way to provide food and cover for wildlife.

Sericea lespedeza forms dense stands along many highways, producing seeds that are viable for 20 years or more. In Missouri, this plant has detrimental effects on prairies, glades, savannas and gravel bars. It spreads quickly in open range lands where it is not as palatable to livestock as native species.

Sweet Clover

Melilotus alba and Melilotus officinalis

White and yellow sweet clover are legumes native to Europe and Asia but were recorded in North America as early as the 1600s. They have been planted as a forage crop, soil builder and wildlife cover crop, as well as for honey production. In Missouri, sweet clover grows along roadsides and railroads, fallow fields and pastures. It can spread into any unflooded, open natural habitat, such as a prairie.

Wintercreeper

Euonymus fortunei

This evergreen, woody vine was brought to the U.S. from Asia for use as an ornamental groundcover. It is still planted for that purpose and is commonly found in forests near urban areas. Birds eating the fruits probably help the plants spread. Wintercreeper will climb on rocks and trees, and it will also form a dense ground cover. It can eliminate the spring wildflowers that would otherwise grow on the forest floor. ▲